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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/514,411	11/15/2004	Hiroshi Yamada	1806.1003	4369

21171 7590 06/12/2008

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EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1795	

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06/12/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10514411	11/15/2004	YAMADA ET AL.	1806.1003

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EXAMINER	
CONNIE P.. JOHNSON	
ART UNIT	**PAPER**
1795	20080430

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

The office action in response to the arguments filed 10/17/2007 was missing PTO 892 form. The attached form contains the references cited for this office action.

Office Action Summary	Application No.	Applicant(s)	
	10/514,411	YAMADA ET AL.	
	Examiner	Art Unit	
	Connie P. Johnson	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 10/17/2007 have been entered and fully considered.

2. Claims 1-14 are presented.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al., U.S. Patent No. 5,798,202 in view of Hiller, U.S. Patent No. 2001/0044076 A1 in view of Asahi Glass Company and further in view of Mori et al., U.S. Patent No. 6,399,270 B1.

Cushner teaches a laser engravable printing plate comprising an elastomeric layer. The elastomeric layer comprises a thermosetting resin (col. 7, line 17). The elastomeric layer also comprises a monomer with an ethylenically unsaturated group (col. 6, lines 38-39). The elastomeric layer also comprises inorganic porous particles, such as silica (col. 5, line 10). Cushner does not teach specific silica particles nor characteristics of the silica particles, such as pore volume and pore diameter. However, Asahi Glass Company teaches that spherical silica particles, such as SUNSPHERE H series particles, are well known and conventionally used as resin fillers. The

SUNSPHERE H series particles have the following properties: specific surface area of 700-800m^2/g, pore volume of 1.0-2.0 ml/g, pore diameter of 5-30nm and an oil absorption capacity of 150-400ml/100g. It would have been obvious to one of ordinary skill in the art to use the SUNSPHERE particles in the composition of Cushner because Asahi Glass teaches that the particles are conventionally used as a resin filler. Although Asahi Glass teaches that the mean particle diameter of the silica particles is 3-12μm, Cushner teaches that features, such as tensile strength, abrasion and tear resistance, hardness and toughness, are enhanced with decreasing particle size (col. 5, lines 8-29). Therefore, the number average particle diameter is a result effective variable., "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)" (see MPEP 2144.05). Therefore, it would have been obvious to one of ordinary skill in the art to use the SUNSPHERE silica particles with an average particle diameter of 200-500Å (0.02-0.05μm) or even smaller to optimize the number average particle diameter and enhance the tensile strength, abrasion and tear resistance, hardness and toughness, are enhanced with decreasing particle size (col. 5, lines 8-29). Cushner also teaches that the elastomeric layer comprises a photoinitiator (col. 5, line 48). The elastomeric layer may also have a shore hardness of 32.3 (col. 15, example 1). The elastomeric composition in example 7 shows butylated hydroxytoluene in the elastomeric material. Butylated hydroxytoluene comprises a molecular weight of 220.35g/mol and has more

than 20% by weight of an aromatic functional group. Cushner teaches applying the elastomeric material to a support (col. 13, lines 1-3). In column 14, lines 44-64 Cushner teaches a method of making the printing plate comprising mounting the elastomeric material on a drum and laser exposing wherein a relief pattern is formed. The elastomeric material may be exposed to laser light and heated (col. 13, lines 26-30). Cushner does not specifically teach that the resin is in a liquid state at 20^0C. However, it would have been obvious to one of ordinary skill in the art to use a liquid elastomer to have a more flexible and durable elastomer for the laser engraving process. In column 5, lines 30-55, Cushner teaches photochemical reinforcement of the elastomer layer by using photohardening materials in the elastomer layer and exposing it with actinic radiation. Cushner does not resin (a) having a molecular weight of the resin is 5,000 to 300,000 as in claim 1 nor that the resin has a softening temperature of 500^0C or less as in claim 3.

However, Hiller teaches graft copolymers in laser engraveable printing reliefs. The copolymers comprise elastomeric binders, such as polyalkylene oxides that have a molecular weight of 10,000 to 50,000 g/mol (page 2, [0020]). The copolymers are used in an amount of 36% and 9% by weight, respectively (page 5, [0060]). Hiller teaches that the polyalkylene oxides provide very high sensitivity to laser radiation and can be engraved without fused edges from the laser exposure (page 2, [0014]). Hiller also teaches that more than one polyalkylene oxide may be used and also polymerizable monomers that are compatable with the binder (page 4, [0040]). Therefore, it would have been obvious to one of ordinary skill in the art to replace the thermosetting resin

with the polyalkylene oxide copolymers of Hiller in the printing plate of Cushner because Hiller teaches that the polyalkylene oxide copolymers increase sensitivity to laser radiation and can be engraved without fused edges from the laser exposure.

Further, Mori teaches a printing plate comprising a component layer with inorganic porous particles (col. 6, lines 34-43). The component layer also comprises a plastic resin and an organic compound (col. 43, line 39). The plastic resin may comprise thermally fusible materials, such as novolac and acryl resins that have a softening point of 50 to 200^{0}C (col. 13, line 54 and col. 14, line 15). Thermally fused particles with a softning point of 50 to 200^{0}C have increased sensitivity and storage stability (col. 13, lines 50-59). Therefore it would have been obvious to one of ordinary skill in the art to use resin particles with a softening point of 50 to 200^{0}C in the printing plate composition of Cushner to increase sensitivity and storage stability in the printing plate composition.

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushner et al., U.S. Patent No. 5,798,202 in view of Hiller, U.S. Patent No. 2001/0044076 A1 in view of Asahi Glass Company and further in view of Mori et al., U.S. Patent No. 6,399,270 B1 as applied to claim 1 above, in view of Watanabe et al., U.S. Patent Publication No. 2002/0045126 A1 and further in view of Mohr et al., U.S. Patent no. 5,851,649.

Cushner teaches a laser engravable printing plate comprising an elastomeric layer. The elastomeric layer comprises a thermosetting resin (col. 7, line 17). The elastomeric layer also comprises a monomer with an ethylenically unsaturated group

(col. 6, lines 38-39). The elastomeric layer also comprises inorganic porous particles, such as silica (col. 5, line 10). Spherical silica particles such as SUNSPHERE H series particles, are conventionally used as resin fillers (see Asahi Glass Company website). Cushner does not specifically teach polyhedral particles nor that the spherical particles have a sphericity of 0.5 to 1.0.

However, Watanabe teaches a photocurable composition comprising spherical silica particles. Watanabe also teaches that the photocured resin composition comprises an organic compound, photoinitiator and an ethylenically unsaturated polymer (page 10, [0124]). The spherical silica particles have a sphericity of 0.95 or more (page 5, [0056]). The spherical silica particles show excellent mechanical characteristics and heat resistance (page 5, [0052]). Therefore, it would have been obvious to one of ordinary skill in the art to use spherical silica particles having a sphericity of 0.95 or more in the composition of Cushner to improve heat resistance of the photocured composition.

Further, Mohr teaches inorganic porous particles, such as polyhedral crystals with a pore size distribution of smallest (10%) to largest (90%) sphere in the polyhedral particle (D_{10}/D_{90}) is no more than 3 (abstract). According to figure 3 in the Mohr reference, the pore diameter of the particle is approximately 5-10nm (0.005-0.010μm). It would have been obvious to one of ordinary skill in the art that the polyhedral particles having a D_{10}/D_{90} ratio of 3 would be expected to have a D_3/D_4 ratio of 1 to 3 because the values are based on pore volume distribution and diameter.

Response to Arguments

7. Applicant's arguments, filed 10/17/2007, with respect to the rejection(s) of claim(s) 1-5 and 8 under 103(a), claims 9-11 under 103(a), claims 1, 12 and 13 under 103(a) and claims 1-2, 5-7 and 14 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

8. The declaration under 37 CFR 1.132 filed 10/17/2007 is not sufficient to overcome the rejection of claim 1 based upon the 103(a) rejection over Takemiya in view of Mori. The data in table A contains incorrect data for the number average particle diameter. According to the AGC website, the values for the number average particle diameter for the SUNSPHERE H series particles are in nanometers (nm). Further, applicant uses SYLOSPHERE C-1504 as the porous particles on page 105 of the specification. The same particles are used for all of the examples in the specification. It is also disclosed in the specification that the SYLOSPHERE C-1504 particles have a number average particle diameter of 4.5μm. However, applicant discloses the same particles having a number average particle diameter of 4.5mm in the declaration. By converting the value to nanometers, the number average particle diameter is more than 4,000nm which is out of range of the claimed value in claim 1.

9. Applicant argues that no explanation is provided as to why a sphericity of a material is related to the pore volume and why one would contemplate that silica particles with a sphericity of 0.95 or more and an average of 1-50μm would have a pore volume of 0.1 to 10ml/g.

10. In the new 103(a) rejection over Cushner in view of Hiller in view of Asahi Glass Company and further in view of Mori, the laser engravable composition comprises spherical silica particles that comprise the following properties: specific surface area of 700-800m^2/g, pore volume of 1.0-2.0 ml/g, pore diameter of 5-30nm and an oil absorption capacity of 150-400ml/100g. Therefore, Cushner in view of Hiller in view of Asahi Glass Company and further in view of Mori definitely teaches a pore volume of 0.1 to 10ml/g.

11. Applicant argues that no reasoning is provided as to why the relationship of specific inorganic particles would be applicable to inorganic porous particles used in other references.

12. In the new 103(a) rejection over Cushner in view of Hiller in view of Asahi Glass Company and further in view of Mori, the laser engravable composition comprises spherical silica particles that comprise the following properties: specific surface area of 700-800m^2/g, pore volume of 1.0-2.0 ml/g, pore diameter of 5-30nm and an oil absorption capacity of 150-400ml/100g. Therefore, Cushner in view of Hiller in view of Asahi Glass Company and further in view of Mori definitely teaches a pore volume of 0.1 to 10ml/g. By applicants' own admission, the pore volume is related to the pore volume distribution and particle diameter. The inorganic particles of Mohri comprise polyhedral crystals with a pore size distribution of smallest (10%) to largest (90%) sphere in the polyhedral particle (D_{10}/D_{90}) is no more than 3 (abstract). According to figure 3 in the Mohr reference, the pore diameter of the particle is approximately 5-10nm (0.005-0.010μm). It would have been obvious to one of ordinary skill that the polyhedral

particles having a D_{10}/D_{90} ratio of 3 would be expected to have a D_3/D_4 ratio of 1 to 3 because the values are based on pore volume distribution and diameter.

13. Applicant argues that it is impossible to contemplate whether or not inorganic particles are porous based on the number average particle diameter. Further, applicant argues that the pore volume cannot be estimated based on the number average particle diameter.

14. Applicant is directed to the new 103(a) rejection over Cushner in view of Hiller in view of Asahi Glass Company and further in view of Mori wherein Asahi Glass Company discloses the pore diameter, pore volume, oil absorption, number average particle diameter and specific surface area of SUNSPHERE silica particles. Therefore, the pore volume is not estimated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1795